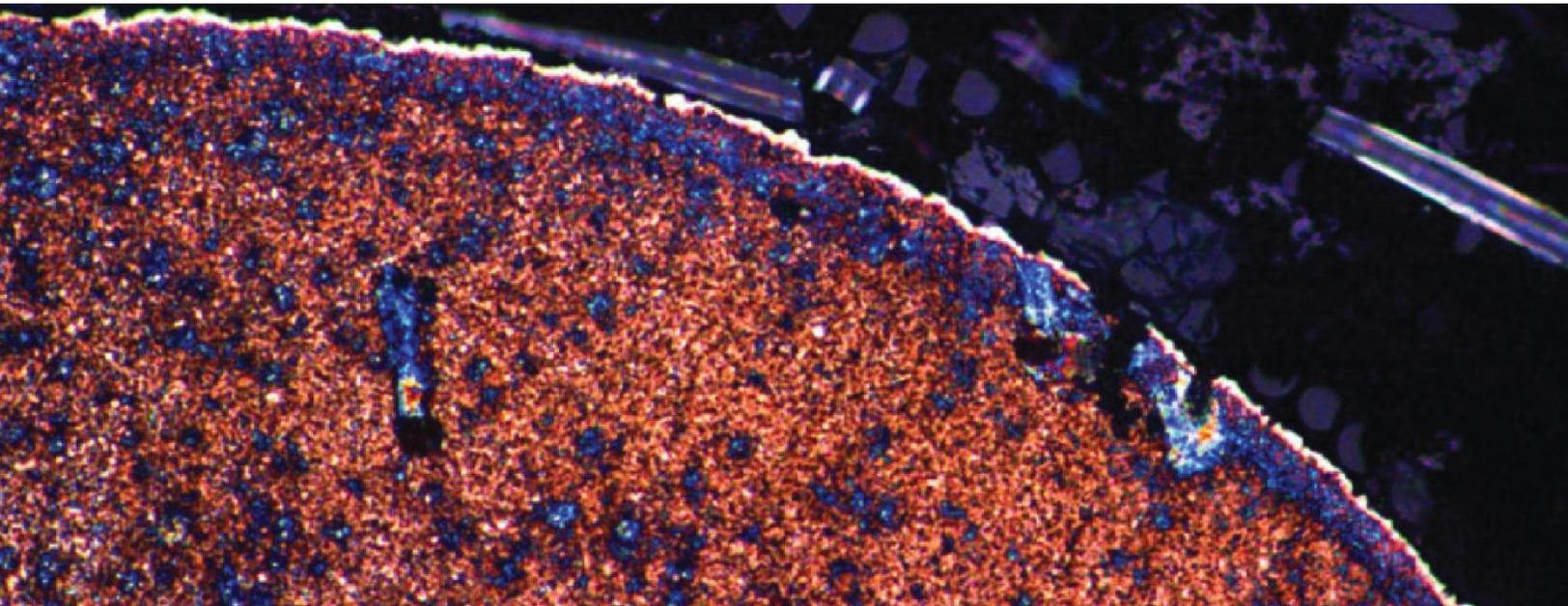


# Cleanliness Contamination System Catalog



## What is Technical Cleanliness?

Technical cleanliness of components refers to the level of particulate contamination on the relevant surfaces of test objects.

## Why Cleanliness inspection?

—  
TO ENHANCED PERFORMANCE

—  
LOWER ENERGY CONSUMPTION



—  
REDUCED EMISSIONS

—  
IMPROVE SAFETY

## How to evaluate Technical Cleanliness?

Technical cleanliness of components refers to the level of particulate contamination on the relevant surfaces of test objects.

STEP 1  
EXTRACTION

STEP 2  
FILTRATION

STEP 3  
WEIGHING

STEP 4  
INSPECTION

STEP 5  
REVIEW

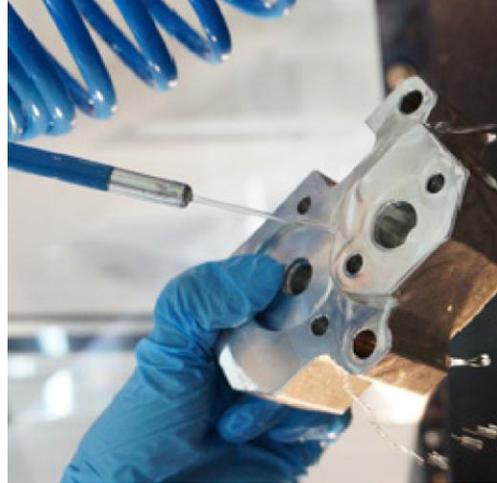
STEP 6  
RESULTS

## Determination of Blank Value

The blank value criterion can be specified by:

- Particle counts (10% of the quantity of permissible or measured particles in each size class)
- Particle size (Max. permissible particle size is halved)
- Gravimetric (10% of permissible or measured residue weight\*)
- None (=0 particles >50 microns permitted\*\*)
- An acceptable blank value has to be calculated according to the required cleanliness value.

**Note:** When validating cleanliness specifications, it's not permitted to subtract the calculated blank level from the analysis result of a component cleanliness inspection.



## Standards

- ISO 16232 (Road vehicles - Cleanliness of components of fluid circuits)
- ISO 4406 (Contamination of Hydraulic Oil )
- VDA 19.1 (German Quality Management System Standard)
- SAE (Society of Automotive Engineers, USA )
- Other OEM defined specifications

Company standards →  
Daimler, VW, BMW,  
Renault, Ford, Bosch etc.

International →  
ISO 16232

National →  
VDA 19



## Solvent contamination kit (For solvent purity)



This versatile, single cartridge, sanitary design filter housing is used for the clarification or high purity filtration of Cleaning Virgin Solvent , This housing offers high reliability and security for continuous or point-of-use service, as well as for small and medium batch processing applications. Every housing supplied with a quality certificate.

### Features

- Design Pressure 125 psi (10 bar)
- Inlet / Outlet 1.5" TC Connections
- In-Line & T-Type Designs Available
- Aseptic Design
- Available Pore size 0.2um , 0.45um Candle
- Maximum Solvent Recovery
- Easy to use Low Point Drain

### Benefits

- Economically Priced
- 100% Pure Virgin Solvent
- Removable for Cleanability
- Ease of Filter Change-out
- Customization available
- Fully Self Draining

### Applications

- Automotive Industry
- Biological
- Fine Chemicals
- Food & Beverage

## Solvent filtration system (For solvent purity)



### Product Description

This versatile, single cartridge, sanitary design filter housing is used for the clarification or high purity filtration of Cleaning Virgin Solvent, This housing offers high reliability and security for continuous or point-of-use service, as well as for small and medium batch processing applications. Every housing supplied with a quality certificate and manufactured to ATEX Directive 94/9/EC (Group II Category CE marked in accordance with Pressure Equipment Directive 97/23/EC

### Features

- Design Pressure 125 psi (10 bar)
- Inlet / Outlet 1.5" TC Connections
- In-Line & T-Type Designs Available
- Aseptic Design
- Available Pore size 0.2um , 0.45um Candle
- Maximum Solvent Recovery
- Easy to use Low Point Drain

### Benefits

- Economically Priced
- 100% Pure Virgin Solvent
- Removable for Clean ability
- Ease of Filter Change-out
- Customization available
- Fully Self Draining

### Applications

- Automotive Industry
- Biological
- Fine Chemicals
- Food & Beverage

## Fluid contamination analysis test kit (basic to professional)

### Product Description

Cleanliness Kit has been specifically developed For assesses the cleanliness level of components or manufactured parts by flushing them out, simulating their functional operation under turbulent flow conditions. This is accomplished by passing a filtered, low viscosity fluid through the component or finished part under turbulent flow conditions to flush contaminants from surfaces and transport them to a test membrane for subsequent analysis

Fluid contamination analysis kit consists of assorted filtration products suited for contamination measurement and control. Contamination Test kit is recommended for ensuring conformance to cleanliness standards popularly known as The kit includes the apparatus shown except standard equipment such as Petri dish, membranes, grounding set, etc. Available in two versions: Patch kit and Contamination Test Kit

### Applications

- Automotive suppliers
- Gravimetric test
- Gear box builders
- Oil Contamination Test

### Included

- SS / Glass Filtration Assembly
- Silicon Tube
- Vacuum Trap Assembly
- Membrane Filter 5um
- Vacuum / Pressure Pump
- Solvent Dispenser Vessel 5Lts
- Dispenser Jet Gun
- Petri Dish Set
- SS Forceps

(Optional Accessories weighing scale, drying oven, SS Trey , microscope)



## Fluid contamination test kit : Professional kit

### Product Description

Fluid contamination analysis kit consists of assorted filtration products suited for contamination measurement and control. Contamination Test kit is recommended for ensuring conformance to cleanliness standards popularly known as The kit includes the apparatus shown except standard equipment such as Petri dish, membranes, grounding set, etc.

Available in two versions: Patch kit and Contamination Test Kit

### Applications

- Automotive suppliers
- Gravimetric test
- Gear box builders
- Oil Contamination Test

### Included

- SS / Glass Filtration Assembly
- Silicon Tube
- Vacuum Trap Assembly
- Membrane Filter 5um
- Vacuum / Pressure Pump
- Solvent Dispenser Vessel 5Lts
- Dispenser Jet Gun
- Petri Dish Set
- SS Forceps (Optional Accessories weighing scale, drying oven, SS Trey , microscope)



## Component cleaning cabinet (automatic) : Industrial cleaning

Cleanliness Cabinet has been specifically developed For assesses the cleanliness level of components or manufactured parts by flushing them out, simulating their functional operation under turbulent flow conditions. This is accomplished by passing a filtered, low viscosity fluid through the component or finished part under turbulent flow conditions to flush contaminants from surfaces and transport them to a test membrane for subsequent analysis

### Features

- Small & Compact design
- Cost reduction through lower production failure rates
- Simple to install and Foot Switch operate Pressure
- Pressurized solvent flushing jet with Flow Regulator
- flushing, blowing and Vacuum drying sequence
- Solvent Low level Indication
- Solvent Re- Filtration
- Storage Tank Capacity – 20 ltr (Customized )
- Inbuilt Inline Filter Holder Suitable for 47 mm membrane

### Applications

- Automotive suppliers
- Gravimetry test
- Gear box builders
- Engine builders
- Suppliers of hydraulic and lubrication component

### Cabinet module

- Dimensions : 300x 300 x 400 mm (Customized)
- Weight : 200 kg
- Materials : 304 L stainless steel Mirror Finish
- Seals: Viton
- Safety MCB For Power supply : 230 V Ac - 50/60 H

### Filtration Module

- Membrane Holder: 47 mm to 90 mm filter membranes
- Vacuum Strainer: For quicker filtration of the analysis fluid
- fluid Diffuser: Distribution of analysis fluid on the membrane
- Operating Pressure: 11.6 to 87 psi (0.8 to 6 bar)
- Analysis Fluid Reservoir: 2x 5.3 gal (10 l) (1x reservoir, 1x suction reservoir)
- Reservoir Change-over: Automatic Filtration of Analysis Fluid: Fine filtration according ISO 4406 min. ISO 12/9 Solvent Recovery From 0.2um Filter (1xx0 series) Integrated Drip Tray: (20 ltr ) with drainage



## COMPONENT CLEANING CABINET (BASIC): FOR MILLIPORE TEST

### Description

Cleanliness Cabinet has been specifically developed For assesses the cleanliness level of components or manufactured parts by flushing them out, simulating their functional operation under turbulent flow conditions. This is accomplished by passing a filtered, low viscosity fluid through the component or finished part under turbulent flow conditions to flush contaminants from surfaces and transport them to a test membrane for subsequent analysis

### Features

- Small & Compact design
- Cost reduction through lower production failure rates
- Simple to install and Foot Switch operate Pressure
- Stainless steel and carbon steel construction
- Pressurized solvent flushing
- flushing, blowing and Vacuum drying sequence
- Requiring only a power and pressurized air source
- Fitted with adjustable feet, requiring only an electrical power supply and pressurized air source

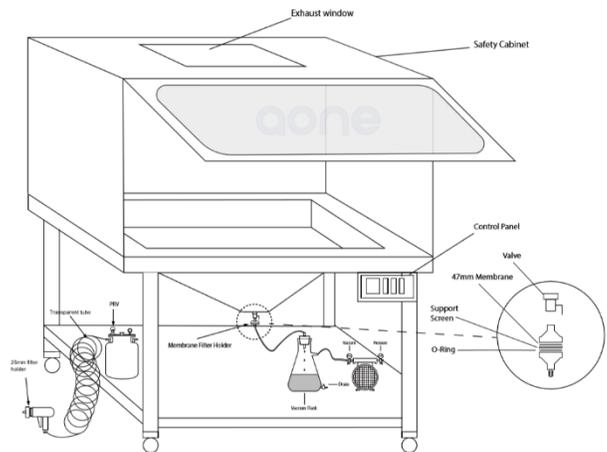


### Applications

- Automotive suppliers
- Gravimetry test
- Gear box builders
- Engine builders
- Suppliers of hydraulic and lubrication component

### Cabinet module

- Dimensions : 1300 x 1300 x 1080 mm(Customized)  
(W x D x H)
- Basin Size : 600 x 500 x 400
- Materials : 304 L stainless steel Mirror Finish
- Seals: Viton



## Inline filter holder



### Product Description:

- 47mm filter diameter
- Available in type 304ss or 316ss
- Filter liquids or gases at point-of-use

This 47mm in-line holder (Model IFH47) is available in both type 304 or 316 stainless steel. The PTFE coated support screen prevents sticking of the membrane during autoclaving. The back-pressure support screen protects the filter from rupture during reverse pressure surges. Upstream vent enables venting at any time during filtration. Dual sealing system compresses filter to ensure no lateral wicking / leaking.

Locking ring enables filter changes without disconnecting from lines. Unit comes standard with silicone o-ring and FPM vent o-ring. When filtering gases, it is recommended that a second support screen be used upstream of membrane. Replacement parts and alternate o-ring materials are available.

### Applications:

- Sterilize and ultraclean liquids and gases under positive pressure.
- Sterilize with membrane in place for microbiological studies.
- Install for point-of-use filtration on filling machines.
- General particulate analysis

## PETRI SLIDES

### Petri-Slide with 47mm Observable Area



#### Product Description:

- 47mm filter diameter
- Available in type Polystyrene.
- Filter liquids or gases at point-of-use Combines covered petri dish with microscope slide!
- Rectangular slide base measures 51mm x 76mm
- Rectangular base fits microscope stages.
- Has frosted area for identification marking.
- Dish serves as an examination and storage container.
- Inner ring on cover does not interfere with observation of particulate samples.
- Ideal for field sample collecting.

#### Applications:

- Experiments that need a controlled covered environment,
- AGAR Experiments,
- Science Fair Projects Lab Experiments!

Fluid contamination analysis test kit (Replacement spare )



Filter Holder Support Screen



Vent/Relief Valve (For Pressure Vessel)



Dispenser nozzle



Air Vent Filter



Replacement Silicon Stopper



Vacuum Trap



Petri Dish Set



SS Forceps



Silicon tube



Aluminum Duck Clamp (For Filter Holder)

## Component washing cabinet/ tray

### Industrial Tray (39302118)

For Washing Component Pressure Sprayed

- **Size:** 200mm x 350 mm
- **Material:** SS 304



### Industrial Washing Basin (39302119)

For Washing Component Pressure Sprayed

- **Platform Size:** 500 mm x 500 mm
- **Material:** SS 304



## Filtration consumable and washing solvent

### Membrane Filter Paper

- **Pore size:** 0.2  $\mu\text{m}$  , 0.45  $\mu\text{m}$  , 1.2 $\mu\text{m}$  ,5  $\mu\text{m}$  , 8  $\mu\text{m}$  , 11  $\mu\text{m}$
- **Filter Size:** 25 mm ,47mm , 90 mm
- **Material:** Mixed Cellulos Ester , PTFE Hydrophobic



### Candle Filter (For Housing)

- **Pore size:** 0.2  $\mu\text{m}$  , 0.45  $\mu\text{m}$  , 1  $\mu\text{m}$  , 5  $\mu\text{m}$  , 8  $\mu\text{m}$  , 10  $\mu\text{m}$
- **Filter Size:** 5" ,10" , 20"
- **Material:** PP , PTFE Hydrophobic , Cellulos Nitrate
- **Seal:** Silicon , Viton



## Particle Size Analyzer Microscope

### Introduction

AP-200 is a special instrument for particle size distribution and particle shape analysis. The instrument combines well-designed professional-grade optical microscope and camera to obtain particles information, using a computer image analysis technology to analyze and process, thereby determining the particle size distribution and particle morphology. AP-200 is easy to operate, the image is clear, and the intuitive measurement resolution is up to 0.1 micron / pixel. It can be widely used in new product Auto research and development, technology control and quality inspection of universities, research institutes and enterprises.

### Applications

AP-200 static particle image analyzer can be used in cement, ceramics, pharmaceuticals, paints, dyes, pigments, fillers, chemical products, catalysts, coal, sediment, dust, flour, food additives, pesticides, explosives, graphite, photographic materials, fuel, metal and non-metal powder, calcium carbonate, kaolin and other powder industry.

- Measuring range: 1 - 6000 $\mu$ m
- Resolution: 0.1  $\mu$ m
- Repeatability: <3%  
(error results from sample preparation not considered)
- Digital Camera (CCD): 3 million pixels
- Segmentation Speed: <1s
- Segmentation Success Rate: >98%
- Operation: Win PC control
- Microscope max Amplification: 4000

### Software Function:

Take the sample morphology into high resolution JPG image; Automatic elimination of particle adhesion, noise point, boundaries incomplete particles, Automatically fill the hollow area and automatic smooth grain boundaries, etc. 12 automatic processing tools. After the adoption of national standards calibrated micrometer, simply select each test scale corresponds with the objective value can directly get the actual size of the value of the particles



## Vacuum / Pressure Pump Oil Free

This oil free pump is a portable AC powered source of vacuum to 550 mm/ 22" Hg or pressure to 4 bar/ 45 psig for filtration of liquids or gases or other continuous or intermittent use with all types of filter holders.

Air flow rates at different vacuum and pressure settings are given behind (for vacuum operation, pump exit pressure is 1 atmosphere).

The motor is permanently oil free, and is protected by a PTFE coated  
Available – Single Stage / Double Stage



# Washing Solvents

## ASAHIKLIN AK-225

ASAHIKLIN AK-225 is an environmentally sensible hydro chlorofluorocarbon, first developed by Asahi Glass. It is a suitable alternative to CFC-113, per fluorocarbons and other HCFCs that have high ozone depletion potential.

### Features and Advantages

Exciting cleaning equipment can be used with minor or no modification  
Compatible with most plastics and metals  
Short drying time and excellent finish of cleaned parts  
Excellent permeability due to low surface tension  
Non-flammable  
Low operating cost  
No wastewater treatment  
Low Non-Volatile Residue (specification of <10 ppm for most products)  
Low isopropyl Bromide Content (specification of < 0.01% wbv)  
Non-Hazardous Air Pollutant (NESHAP requirements do not apply in many cases)  
Non-Ozone Depleting  
Low Global Warming Potential Non-Hazardous Waste (Not regulated by DOT for transportation)

### Features

- . Same cleaning and drying properties as former chlorine-based solvents.
- . It can be used with cleaning machines for chlorine-based organic solvent.
- . It can be recycled repeatedly.
- . Environmentally-friendly with ozone-depleting potential, low global warming potential and a short atmospheric lifetime.
- . It does not affect metals, resins, ceramics and glass materials.
- . Noninflammable, water-insoluble and has high permeability.
- . Dry quickly and make work efficiently.
- . No Flash Point
- . Vapor cleaning is available
- . Less odor

### Applications

- . Metals
- . Automobile parts
- . Jigs
- . As water displacement agent
- . for drying
- . Printed circuit boards
- . Precision parts
- . As diluting agents for polymers
- . Water-soluble cutting fluids



## DOW PER

Dow per, also known under its systematic name tetrachloroethene and many other names is a chlorocarbon with the formula  $Cl_2=CCl_2$ .

It is a colorless liquid widely used for dry cleaning of fabrics, hence it is sometimes called "dry-cleaning fluid."

### Applications:

Tetrachloroethylene is an excellent solvent for organic materials. Otherwise, it is volatile, highly stable, and nonflammable. For these reasons, it is widely used in dry cleaning. Usually, as a mixture with other chlorocarbons, it is also used to degrease metal parts in the automotive and other metalworking industries. It appears in a few consumer products including paint strippers and spot removers



## ENSOLV 5408

The only Boeing Approved NPB Vapor Degreasing Solvent

### Benefits of EnSolv 5408

- Non-Chlorinated
- No Flash Point (Non-Flammable)
- SNAP Approved
- Superior Acid Neutralization
- White Metals Reaction
- Prevention
- Superior Soil Lifting (KB Value =130)
- Rust Inhibition



## N-propyl bromide

N-propyl bromide is a powerful solvent, for cleaning and degreasing meets or exceeds the requirements. It has the same characteristics and similar physical properties as other halogenated solvents such as 1, 1, 1- trichloroethylene.

N-propyl bromide has no flash point and has a low ozone-depleting potential. It is essentially 1,1,1- trichloroethylene without an adverse effect on the environment. N-propyl bromide can be used for vapor degreasing and rapid drying.

N-propyl bromide can be useful in various applications such as: Cleaner— Degreaser, Precision cleaning, Metal cleaning, Carbon removal, Automotive parts cleaning, Drying agent.

N-propyl bromide can be utilized in existing vapor degreasing drying equipment after some adjustments. It can be used to replace 1, 1, 1-TCA, TCE, and other cleaning solvents.



## RCU PER

Perchloroethylene Known also as pce or tetrachloroethylene, pce is a clear, colorless liquid with a distinctive, somewhat ether-like odor. It is non-flammable, having no measurable flash point or flammable limits in air. Effective over a wide range of applications.

Pce is supported by closed-loop transfer system and stabilizers. High purity grade designed for metal cleaning. An excellent solvent for heavy-duty cleaning and degreasing jobs where there's contamination.



## Our Clients

